

What is claimed is:

- 1 1. A method for modifying a database structure, the database being defined at least
2 partly by commands that define a database schema containing tables with fields that
3 have attributes, comprising the steps of:
 - 4 providing a set of schema instructions defining a database structure according to
5 a preexisting schema;
 - 6 providing a corresponding set of schema instructions defining the database
7 according to a modified schema;
 - 8 parsing the schema instructions for both the preexisting schema and the
9 modified schema, so as to produce two logical syntax trees wherein the database
10 structure is defined by at least a subset of structure types and attributes of which at least
11 one differs between the preexisting schema and the modified schema;
 - 12 comparing the two logical syntax trees to generate a set of differences between
13 said structure types and attributes of the subset;
 - 14 generating from the differences a set of database modification commands for
15 altering a database according to the preexisting schema, to a database according to the
16 modified schema, with respect to the structure types and attributes of the subset.
- 1 2. The method according to claim 1, wherein the database structure is defined by
2 an access and query language that defines tables of variables having labels and field
3 characteristics.
- 1 3. The method of claim 2, wherein the database structure is defined by ANSI
2 structured query language (SQL).
- 1 4. The method of claim 2, wherein the database structure is defined by at least one
2 aspect selected from the group consisting of: association of variable values with a key
3 variable; association of variable values in at least one table; table name and labeling;
4 variable name and labeling; aliases; table type; variable type; table dimensions; field
5 length; variable numeric format; variable string format; identification of key variables;
6 conditions for uniqueness; conditions for null-ability; and, default values.
- 1 5. The method of claim 2, wherein the schema instructions defining the database
2 structure according to the preexisting schema are derived from an operational database,

3 and further comprising the step of modifying the operational database by applying the
4 database modification commands thereto.

1 6. The method of claim 1, further comprising: identifying at least one ambiguity in
2 said comparing of the two logical syntax trees to generate the set of differences between
3 said structure types and attributes of the subset; presenting said ambiguity to a user for
4 resolution; accepting an input from the user for resolving the ambiguity; and wherein
5 said generating of the database modification commands is at least partly based on said
6 input from the user.

1 7. The method of claim 6, wherein the set of differences are stored in a log file and
2 wherein presenting the ambiguity comprises at least one of displaying and sending the
3 log file to a user.

1 8. The method of claim 6, further comprising recording a log containing a
2 representation of at least one of said differences and said input from the user.

1 9. The method of claim 6, wherein the ambiguity comprises a choice between one
2 of at least two alternative database structures that comply with the modified schema.

1 10. The method of claim 6, wherein the ambiguity comprises a choice between one
2 of at least two alternative modifications to the preexisting schema that proceed toward
3 the modified schema.

1 11. The method of claim 10, wherein the ambiguity comprises a choice between
2 renaming at least one of a table and a variable in a table, versus deleting and replacing
3 at least one of said table and the variable in said table.

1 12. A computer readable medium encoded with computer-executable instructions
2 for controlling operation of a processor of a printing device to cause the processor to
3 perform a method comprising:
4 providing a set of schema instructions defining a database structure according to
5 a preexisting schema;
6 providing a corresponding set of schema instructions defining the database
7 according to a modified schema;

8 parsing the schema instructions for both the preexisting schema and the
9 modified schema, so as to produce two logical syntax trees wherein the database
10 structure is defined by at least a subset of structure types and attributes of which at least
11 one differs between the preexisting schema and the modified schema;

12 comparing the two logical syntax trees to generate a set of differences between
13 said structure types and attributes of the subset;

14 generating from the differences a set of database modification commands for
15 altering a database according to the preexisting schema, to a database according to the
16 modified schema, with respect to the structure types and attributes of the subset.

1 13. The computer readable medium according to claim 12, wherein the database
2 structure is defined by an access and query language that defines tables of variables
3 having labels and field characteristics, and the database structure is defined to include at
4 least one aspect that is changeable with respect to one of: association of variable values
5 with a key variable; association of variable values in at least one table; table name and
6 labeling; variable name and labeling; aliases; table type; variable type; table
7 dimensions; field length; variable numeric format; variable string format; identification
8 of key variables; conditions for uniqueness; conditions for null-ability; and, default
9 values.

1 14. A dataprocessing system for manipulating a database, comprising at least one
2 programmed processor responsive to computer-executable instructions configured for:
3 providing a set of schema instructions defining a database structure according to
4 a preexisting schema;

5 providing a corresponding set of schema instructions defining the database
6 according to a modified schema;

7 parsing the schema instructions for both the preexisting schema and the
8 modified schema, so as to produce two logical syntax trees wherein the database
9 structure is defined by at least a subset of structure types and attributes of which at least
10 one differs between the preexisting schema and the modified schema;

11 comparing the two logical syntax trees to generate a set of differences between
12 said structure types and attributes of the subset;

13 generating from the differences a set of database modification commands for
14 altering a database according to the preexisting schema, to a database according to the
15 modified schema, with respect to the structure types and attributes of the subset.